

UNIVERSITY OF NOTRE DAME
DEPARTMENT OF PHYSICS

NUCLEAR SEMINAR

Monday, September 26

Development of Platforms for Nuclear Science Research in High Energy Density Plasmas at the National Ignition Facility

Dr. Dawn Shaughnessy

Lawrence Livermore National Laboratory

The neutron luminosity from highly compressed deuterium-tritium (DT) capsules at the National Ignition Facility (NIF) can be used to measure neutron reaction cross sections relevant to stellar nucleosynthesis, stockpile stewardship, and national security. Observable concentrations of activation products can be produced from nanogram quantities of radiochemical detector isotopes loaded in the innermost layer of the capsule ablator close to the DT fuel. Collection of solid and gaseous debris products at NIF performed during DT shots have shown collection of activated neutron capture products and fission fragments from U-238 loaded in either the hohlraum, or sputtered directly into the capsule ablator. As platforms for doped capsules are developed the effects of high energy density plasmas on nuclear reaction rates will be studied through high-yield platforms at NIF. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

4 pm – 5 pm
Nuclear Science
Laboratory
124 Nieuwland
Science Hall

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All interested  
persons are  
cordially invited  
to attend

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Refreshments will be
served prior to the
seminar in room 124